

Preparing for SMS 9-1-1 Deployments

**Presented by TeleCommunication Systems, Inc.
to the FCC
November 7, 2012**



Agenda

- Introductions
- Why SMS to 9-1-1?
- PSAP & Carrier Readiness
- Long Term Evolutionary Path
-SMS to 9-1-1 Demo.....
- TCS SMS to 9-1-1 – Overview
- SMS to 9-1-1 Attempts
- New Topic: PSAP Credentialing Agency
- Questions?



Why SMS to 9-1-1?

- *"It's hard to imagine that airlines can send text messages if your flight is delayed, but you can't send a text message to 9-1-1 in an emergency. The unfortunate truth is that the capability of our emergency response communications has not kept pace with commercial innovation has not kept pace with what ordinary people now do every day with communications devices. The shift to NG911 can't be about if, but about when and how."*
 - Chairman Genachowski (APCO 8/19/2011)
- *"For people with significant hearing loss, gaining access to 911 via text messaging is a huge leap forward. To date, people with hearing loss were relegated to using TTYs or using a voice call to 911 without knowing whether they would be able to hear what the dispatcher said. Advocates for people with hearing loss have been on the forefront of efforts to get text messaging and real time text messaging accepted as another way to reach 911 in an emergency. "*
 - HLAA (5/22/12)



PSAP & Carrier Readiness

PSAP Preparation

- ✓ Networking to receive and respond to SMS messages
- ✓ Capable of receiving and responding to SMS messages
- ✓ Receipt of coarse and precise location (as available)
- ✓ Logging - in accordance with state regulations
- ✓ Liability Protection
- ✓ Opt In or Opt Out

Carrier Preparation

- ✓ Single National Short Code: "9-1-1"
- ✓ Route Based on Coarse Location Information
- ✓ Bounce-Back Message: *"Please make a voice call to 9-1-1. There is no text service to 9-1-1 available at this time."*
- ✓ Support Two-Way Messaging
- ✓ Provide Access to "Best Available Location" Information
- ✓ Liability Protection



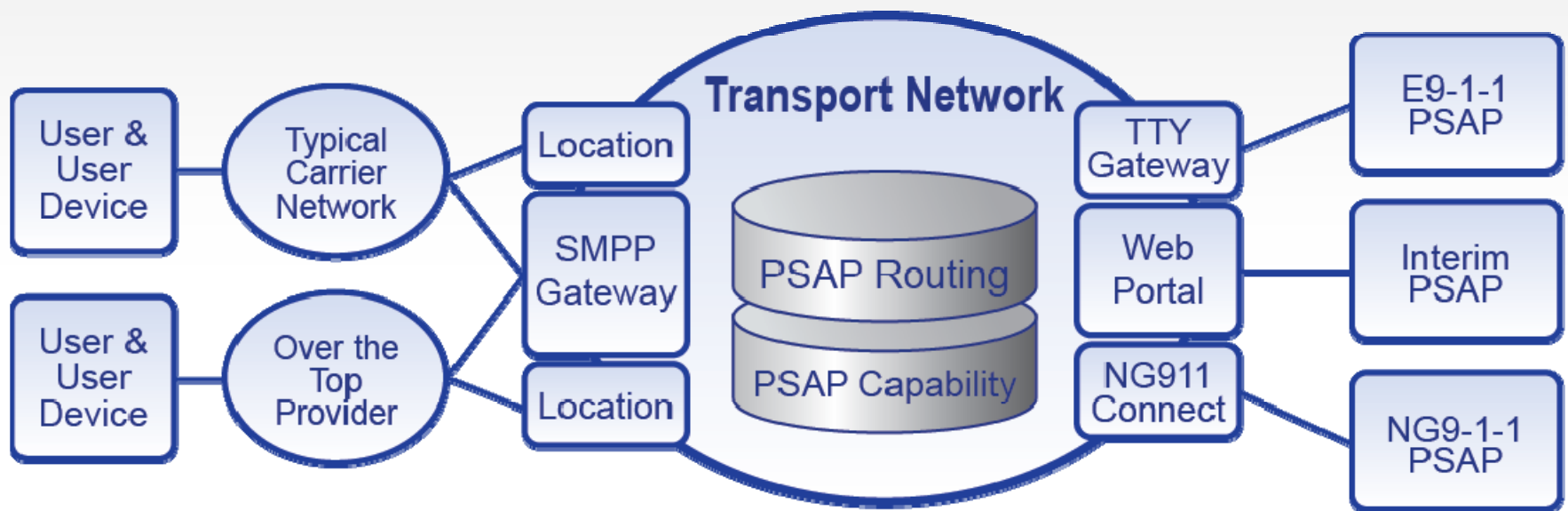
Long Term Evolutionary Path

- ✓ Other “Over-the-Top” Messaging Providers (e.g. Instant Messaging)
- ✓ Future Carrier Supported “Text” Clients (e.g. RTT)
- ✓ Inter-Carrier Location Roaming
- ✓ Location Accuracy Rules
- ✓ Non-Service Initialized Handsets



TCS SMS to 9-1-1 - Overview

TCS Implementation of the Generalized Architecture





Eastern States – Month of October

All markers represent attempts to contact 9-1-1 via SMS.

SMS attempts in VA are excluded from the table because they are mostly test messages.



CT	35
DC	10
DE	21
IN	94
KY	397
MA	119
MD	95
ME	192
NC	277
NH	19
NJ	121
NY	310
OH	134
PA	96
RI	3
SC	92
TN	228
WV	3

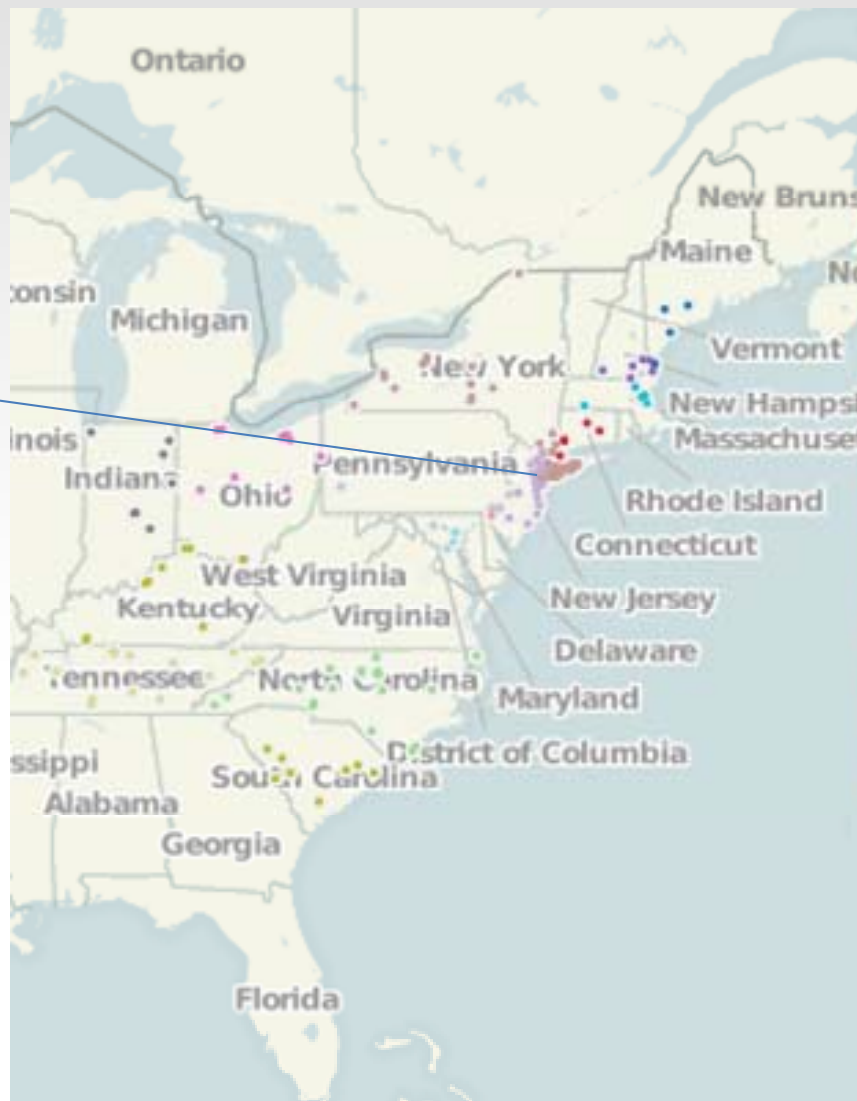


Eastern States – 10/29-11/1

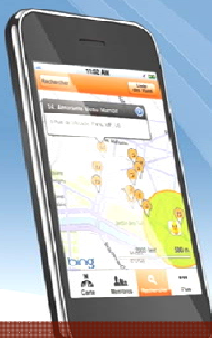
All markers represent attempts to contact 9-1-1 via SMS.



SMS attempts in VA are excluded from the table because they are mostly test messages.



CT	5
DE	1
IN	8
KY	12
MA	6
MD	5
ME	6
NC	28
NH	8
NJ	31
NY	130
OH	11
PA	14
SC	10
TN	73



NG9-1-1 PSAP Credentialing Agency





NENA i3 NG9-1-1 Security based Applications

PCA Infrastructure – Foundation for Security in Deploying and Operating an i3 NG9-1-1 ESInet

- Machine and/or User Authentication
 - LIS uses ESRP & PSAP credentials for location dereference
 - ECRF/LVF accepts client credentials for routing and/or validation
 - PSAP operator role certificate-based authorization & access
- Secure Communication and Privacy
 - Encryption of Data for Secure Storage and Transport, including TLS, IPSec



NENA i3 NG9-1-1 General Security Requirements

National NG9-1-1 Security Infrastructure Needed *Ahead* of Widespread NG9-1-1 Deployment

- NENA i3 Requires Authorized PCA (PSAP Credentialing Agency)
- Comprises Root Certificate Authority (CA) at a national level to issue and revoke security credentials (in the form of an X.509 PKI Certificate) for authorized systems services and 9-1-1 agencies
- Allows multi-tier PCA/CA Infrastructure for State, Country, and Jurisdiction level
- Establishes and Follows Policy & Practice Statements CP/CPS for Certificate Allocation and individual PSAP vetting
- Creates, Signs, and Distributes X.509 Digital Certificates to 9-1-1 Authorities and i3 ESInet system service provider entities



NG9-1-1 Security Impacts related to the PCA

NG9-1-1 Security – Justification and Related Risks

- NENA i3 08-003 Specification Requires Security
- NG9-1-1 Deployments will be slowed without National CA Infrastructure
- Interoperability between NG9-1-1 PSAPs across jurisdictions is limited without use of mutual certificate based trust mechanisms
- External & Internal Threats: NENA i3 security requirements establish a basic security framework to protect NG9-1-1 systems and networks, data and processes from external and internal attacks, threats, and failures



Questions?

Thank you.